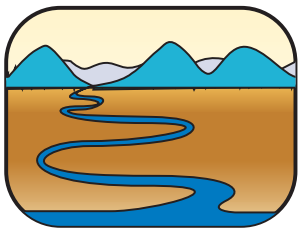

Lessons from the Bay

Part 1: To the Teacher

Introduction

Teachers and students all over Virginia are becoming involved in caring for Virginia's environment. This Project Action Guide includes a variety of projects, with step-by-step instructions from planning through closure, resources readily available to teachers, ways to make student efforts a recognized part of a statewide project, and much more.

Upper elementary and middle school students often feel strongly about environmental issues but lack the skills and information necessary to take responsible and appropriate action. This publication can help teachers in upper elementary grades to channel this student interest and enthusiasm into productive learning experiences that result in positive environmental outcomes. The projects provide a structured approach to open-ended problem solving. With teachers serving as facilitators and advisors, students can benefit from defining and addressing problems within a real-world context.

Some projects presented in this publication may take several months to complete; others are shorter term. Time frames will vary with individual project plans.

Through these projects, teachers and students become part of Virginia's growing network of people who are making a difference.

Teacher as Team Leader

Teamwork is not just for the athletic field—it is also the key to a successful environmental action project. Like a coach, the classroom teacher must be a model, guide, and counselor for students as they learn to work together to accomplish a common goal.

When students share responsibility for organizing and conducting a project, they begin to develop team skills and behaviors. They learn that teams are important not only in sports, but also in science, architecture, engineering, and many other career fields. Students on a project team must

- communicate ideas
- consider options
- plan ahead
- coordinate actions
- anticipate problems
- evaluate results.

They apply information and strengthen skills learned in English, history and social sciences, mathematics, and science classes. As team members they may also disagree with each other on occasion and must learn the art of compromise.

Teacher Responsibilities

As team leader, the teacher has the responsibility of organizing and controlling all of this activity so that it leads students toward achievement of project and educational goals.

Safety and security

The teacher is responsible for safety procedures, any insurance or liability arrangements, and conformity of projects to school policy.

Work schedule and workgroups

Once the class has decided on a project, the teacher helps the students develop a work schedule and timeline. Using this work schedule as a guide, the teacher can subdivide the class into workgroups, each responsible for a part of the project. The teacher's knowledge of each student's personality, learning style, and preferences will be invaluable in organizing a classroom full of eager (and less eager) workers into smoothly functioning workgroups.

Adult guidance

After workgroups are established, the teacher directs and supervises their work or arranges for other adults to help supervise. Unless the students are very young or have no experience in doing projects, the adults should avoid giving overly structured directions that force the students to follow a set of "cookbook" instructions. Much of the learning that takes place in this type of activity,

as well as the students' sense of ownership and pride, results from the fact that they did much of the work on their own. Certainly students will need guidance from the teacher as their plans emerge, and the teacher or other adults in charge should approve all activities in advance.

Division of labor

Among the challenges a teacher faces when managing small-group work are making sure the work is divided fairly and appropriately among the group members and ensuring that all students are contributing to the group effort. Some students will always do more than others; however, no student should sit back and let other team members do all the work. Nor should an overzealous student be allowed to take charge without allowing others an opportunity to participate.

Interim meetings

The teacher will wish to schedule class meetings at critical points so that each workgroup can report to the other workgroups what it has accomplished.

Clarification of student roles and parent involvement

Students' roles should be clearly defined. They each should know what their responsibilities are, how to start, and when to complete their work. All team members should receive role assignments, along with clearly written directions defining their job and deadlines. Students should take this information home to their parents so that parents are aware of the expectations. Parents should also receive information about the academic aspects of projects, such as competency and skill applications in English, history and social sciences, mathematics, and science.

Student Workgroup Assignments

The roles described below are broadly defined so that they can be adapted for a variety of project plans. In making workgroup assignments, teachers will wish to consider in particular the needs of students with differing abilities. The wide variety of tasks and roles available should provide all students with opportunities to do their best work.

Workgroup chairperson

The chairperson is responsible for coordinating the workgroup so that the job gets done. This student conducts workgroup meetings, makes work assignments (with the teacher's help), and makes sure all workgroup members understand their assignments and deadlines. This student will be the teacher's contact person and will communicate information between the teacher and workgroup members. This student should get along well with people, be a good communicator, and be organized.

Recordkeeper/reporter

The recordkeeper/reporter is in charge of all written information, including minutes of workgroup meetings, letters, reports to the class, and other such communications. This student should be skilled in written expression. The record-keeper/reporter may also be responsible for giving oral progress reports to the entire class.

Materials and supply manager

With input from other workgroup members, the materials and supply manager is responsible for developing a list of the materials and supplies needed for the workgroup's assignment. This student will take the necessary steps to obtain the materials and supplies and be responsible for keeping track of loaned and donated items. Two students may share this role if there is enough work for both, and all workgroup members will need to pitch in to help provide the needed materials.

For example, if the workgroup is in charge of preparing a school site for a butterfly garden, the materials manager discusses with the workgroup what garden tools are needed and whether they can be borrowed from parents, the school, or the local garden supply store. During the project, the materials manager keeps track of the tools and, with the teacher's guidance, makes sure they are used and cared for properly. Once the project is complete, the materials manager collects the equipment and makes sure everything is returned to its owner in good condition.

Technician(s)

These students will be in charge of particular details that require specific skills and talents. For example, in an advertising or public relations workgroup, a student who has artistic talent could be the technician in charge of the design of posters or flyers. A student with computer skills could be in charge of word processing to assist the recordkeeper with minutes, letters, and reports. Technicians may also be in charge of a variety of other tasks, serving as helpers in whatever the workgroup undertakes.

Authentic Assessment

Life presents everyone with a series of major and minor projects, ranging from small daily activities like meal planning and preparation to major undertakings like managing a sales campaign or buying a house. Adults routinely define goals,

prepare schedules, coordinate with others, evaluate options, implement procedures, and evaluate outcomes. They usually know both the goals and the performance standards associated with the project's successful discharge. School projects help teach the skills that students will need to manage life's projects. Assessment techniques for student projects should contribute to these skills.

Portfolios as Authentic Assessment

Environmental action projects are by their nature "authentic"; that is, they deal with real and realistic situations and apply content and skills that are actually useful in the real world. Authentic assessment requires extra thought and planning on the teacher's part but has the advantage of enabling students to take an active part in shaping their own learning. Portfolios are popular tools for assessing authentic learning situations because they provide a comprehensive view of students' progress in integrating skills and content in personally meaningful ways. The project portfolio allows students to take charge of the setting for their learning and then to present their work within its own unique context.

Project Portfolio Guidelines

The objective of a project portfolio is to provide an evidential record of students' use of skills and information during the pursuit of the project's goals. Teachers who use project portfolios for evaluation typically adjust specifications to meet their individual needs. Factors such as time, compatibility with other aspects of the curriculum, existing team and school evaluation practices, and student readiness for independent and cooperative group work will influence portfolio requirements. Portfolios may be the responsibility of individual students or of workgroups.

Introducing portfolios

Teachers may introduce the concept of maintaining a portfolio as a record of student achievement and a demonstration that students can use information and resources to achieve identified objectives. Teachers may wish to ask students which portfolio items would provide the best evidence of what the student knows and is able to do. Suggestions might include

- a statement of reason for the project
- a statement of goals
- lists of resources available to the class
- project plans and schedules
- a summary of options considered
- a project journal
- snapshots
- drawings
- charts and graphs
- lists of certainties and uncertainties as the project develops
- an explanation of the importance of certain items
- copies of letters sent
- documentation of publicity or other recognition earned by the project.

The teacher or the class will need to address physical requirements of the portfolio, such as the following:

- *Does it have to be in ink?*
- *Must it have a cover?*
- *Is a table of contents mandatory?*

Defining portfolio specifications

- *Content and format*. The teacher should decide exactly what records each student must keep and in what form records must be kept. Although projects may differ and individual students may be doing different things, some consistency of format will be helpful.
- *Volume of material.* The teacher should decide how much material should be in the portfolio. Selecting material gives students the opportunity to conceptualize contents, critically evaluate individual entries for applicability, and otherwise synthesize what they want to communicate.

Guiding portfolio development

- *Schedule.* The teacher may wish to provide students with a list of the basic specifications and a schedule for due dates, interim, and final portfolio presentations.
- *Standards.* As project planning begins, the teacher should help groups identify what they will actually do. Through class and group discussion the groups should learn to identify the standards of excellence associated with project tasks. Teachers may wish to use examples of excellence (exemplars) to determine standards. They may also talk about what project materials students might choose

to include in their portfolios to show that they have used the standards effectively.

Conducting interim portfolio review

Teachers will need to conduct a preliminary review and discussion of portfolios well before projects are completed. In the review, they should compare materials presented with standards developed by the class. They may also analyze tasks to determine what needs to be done and what the differences between doing those things well and poorly might be. Teachers should try to catch students doing things right, using these successes as models for others.

Reviewing the final portfolio

Students should turn in, along with their portfolios, a required overall essay or notes attached to individual portfolio pieces explaining

- how and why the selected pieces were chosen
- how the portfolio represents what the students learned and accomplished.

The teacher should have a group conference with each project group, allowing each student to use the portfolio to describe how he or she contributed to the project.

Grading portfolios

Portfolios are not always easy to grade. How does a teacher grade a superb effort that netted a disappointing outcome in comparison to a project that had impressive results attributable to a few lucky events? How does a teacher handle situations in which some of the workgroup members failed to contribute? What happens to the grade if someone inadvertently damages or loses the portfolio? No one has all the answers, but the following tips should help:

- Focus on what is important for getting the job done. Although the results of any project should be meaningful to the students, of far greater importance is the students' developing ability to apply skills and content to effective problem solving.
- Rely heavily on the standards that the class identified as attributes of excellence. Apply these standards as numerical rating systems if necessary.
- Collaborate with other teachers on setting standards.
- Use several grades; if one portfolio is submitted by each workgroup, a group grade could be given for the portfolio and individual grades given for essays and performance of individual responsibilities as team members. For a win-win situation, award the group grade as extra credit, assuring that nobody could feel that other group members unfairly damaged individual grades. Students could also award a self-evaluation grade, based on their own assessment of personal achievement.

Resources for Authentic Assessment

Burke, K., R. Fogarty, and S. Belgrad. *The Mindful School: The Portfolio Connection.* Arlington Heights: IRI/Skylight Training and Publishing, 1994. ISBN 0932935788.*

Collins, A. "Portfolios: Questions for Design." *Science Scope* 15.6 (1992): 25–27.

The Developing Child: Authentic Assessment. New York: Glencoe McGraw-Hill, 2000. ISBN 0078207266.*

Fischer, C.F. *Authentic Assessment: A Guide to Implementation*. Thousand Oaks: Corwin Press, 1995. ISBN 0803962568.*

Paulson, F. L., P. A. Paulson, and C. A. Meyer. "What Makes a Portfolio a Portfolio?" *Educational Leadership* 48.5 (1991): 60–63.

The pH Factor: Forms of Alternative Assessment. Miami Museum of Science. <http://www.miamisci.org/ph/lpdefine.html>.

Wiggins, G. "Standards, Not Standardization: Evoking Quality Student Work." *Educational Leadership* 48.5 (1991): 18–24.

Wolf, D. P., P. G. LeMahieu, and J. Eresh. "Good Measure: Assessment as a Tool for Educational Reform." *Educational Leadership* 49.8 (1992): 8–13.

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